Rapid Evidence Product
April 2021

Care Coordination and Care Plans for Transitions Across Care Settings

Purpose

The purpose of this topic development brief is to explore and scope the evidence on care coordination and care plans for transitions across care settings ("transitional care interventions") in persons with pain, in order to help determine whether this topic is suitable for further action such as commissioning a systematic review or technical brief to inform clinical or policy decision making (including potential coverage determinations), or to inform future research priorities. This topic development brief is part of the Dr. Todd Graham Pain Management Study, to inform a report to Congress on acute and chronic pain management for individuals entitled to Medicare benefits.[1]

Issue

Transitions of care in persons with pain represent a period of increased vulnerability due to potential disruptions in pain management, which could result in worsened quality of life, function, and other adverse patient outcomes. In addition, persons with pain are often discharged on opioids; such patients may be at risk for opioid-related adverse events or withdrawal if opioids are discontinued or tapered abruptly. The Medicare population is particularly vulnerable during transitions of care due to higher medical complexity, presence of disability, older age, or (in the case of dual eligibility) socioeconomic status. Evidence indicates that transitional care interventions reduce risk of readmission in patients with congestive heart failure and in general medical populations.[2] Therefore, if effective in people with acute or chronic pain, transitional care interventions represent a potential opportunity to optimize management and reduce adverse outcomes in this population.

Key Findings

- A review of reviews on transitional care interventions included 10 systematic reviews of mixed patient populations (geriatric, postsurgical, or various patients receiving specific transitional care interventions [hospital at home, medication reconciliation, patient-centered medical home, telemonitoring or structured telephone support]) and seven systematic reviews on transitional care interventions in specific patient populations (acute myocardial infarction/acute coronary syndrome, cancer, congestive heart failure, chronic obstructive pulmonary disease, mental health admissions, or stroke/acute coronary syndrome).[2] Overall, the review of reviews found that successful transitional care interventions are comprehensive, extend beyond hospital stay, and have flexibility to

respond to individual patient needs. Only one systematic review focused on patients with pain. It was a systematic review in postsurgical patients that evaluated the multidisciplinary Enhanced Recovery After Surgery (ERAS) model in post-pancreatectomy patients,[3] but identified no randomized trials. The review found no difference in readmission rates between ERAS versus usual care, based on seven-moderate quality and three low-quality observational studies. In addition, the ERAS protocols focused primarily on management from surgery until hospital discharge, rather than on transitions following discharge. The other systematic reviews primarily focused on effects of transitional care interventions on readmission rates, which may not be the most relevant outcome for patients with pain and none included studies of patients with pain or reported key pain-related outcomes (e.g., pain intensity, pain-related function, opioid utilization, opioid-related adverse events).

- One other meta-analysis (not in the review of reviews) also identified no randomized trials and found no effects on readmission rates or mortality.[4]
- Eight other recent systematic reviews of transitional care (not in the review of reviews) also did not include studies of patients with pain and did not report key pain-related outcomes.[5-12]
- No study not included in systematic reviews directly evaluated effects of transitional care interventions in people with pain.
- One cohort study of patients with postsurgical pain and a usual provider prior to surgery found an association between early return visit to the usual provider and decreased likelihood of receiving opioid prescriptions from multiple providers.[13]

Background

The transition of care across healthcare settings is fraught with challenges for patients and healthcare providers. For example, during the post-hospital discharge period, patients often report confusion about how to take their medications, whom to contact with questions, and how medical and other information about care (e.g. long-term services and supports) is communicated across settings. Poorly executed care transitions have been associated with negative impacts on patient safety and person-centered care, and have been associated with a higher risk of hospital readmission.[14-16] Indeed, over a decade ago a highly influential analysis of Medicare data suggested that unplanned rehospitalization of Medicare beneficiaries was common and was associated with over $17 billion in excess spending annually.[17] In response, the Centers for Medicare & Medicaid Services has instituted high-level policies to improve care transitions, such as the Hospital Readmission Reduction Program and the introduction of payment codes for transitional care management intended to spur innovation and implementation of interventions to improve the transition of care across healthcare settings.

Transitional care has been defined as "a set of actions designed to ensure the coordination and continuity of healthcare as patients transfer between different locations or different levels of care within the same location."[14] Over the last decade, transitional care interventions have proliferated, and the literature examining the effectiveness of these interventions has also expanded rapidly. Transitional care interventions vary with regard to transition type (hospital to home, hospital to nursing facility, within-hospital), target condition, intervention target (patient, caregiver), key processes and approaches (e.g., education, hospital-at-home,[18] medication reconciliation), key personnel involved (e.g., nurse, social worker, clinician), method of postdischarge followup (e.g., phone, home visits, telemonitoring), and intensity and complexity.

A review of reviews found that transitional care interventions reduce risk of readmission in patients with congestive heart failure and in general medical populations.[2] There was consistent

evidence that enhanced discharge planning and hospital-at-home interventions reduced readmissions in mixed patient populations; interventions that reduced readmissions were characterized by addressing multiple aspects of the care transition, extending beyond the hospital stay, and accommodating individual patient needs. There was insufficient evidence on other aspects of transitional care interventions, including optimal staffing, patient selection, or optimization for different care and discharge settings.

However, the extent to which patients with pain or pain-related outcomes have been included in the transitional care intervention literature is unclear, even though pain is an extremely important symptom and comorbidity among older hospitalized patients. Acute pain is ubiquitous following surgery, is the most common reason for emergency department visits, and is commonly encountered in outpatient and inpatient settings. Pain is highly prevalent among hospitalized patients, occurring in 52 to 71 percent of patients in cross-sectional surveys.[19] Chronic pain is also common in hospitalized patients, though the pain may or may not be related to the primary condition requiring hospitalization. In one study of older (over 65 years) adults admitted with moderate or severe pain, approximately 40 percent reported chronic pain.

Pain is common in older people, including those hospitalized. The prevalence of chronic pain was 27.6 percent among those 65 to 84 years of age and 33.6 percent among those 85 years of age or older, the latter prevalence exceeding any other age group. Older people are disproportionately impacted by postsurgical pain, as persons 65 years of age or older are 2.6 times more likely to have surgery than those 45 to 64 years of age.[20] Moreover, the management of pain across healthcare settings may be particularly challenging, especially among older patients. Management of pain in older adults is often complicated by medical comorbidities, polypharmacy, increased susceptibility to treatment harms, and assessment challenges due to impaired cognition, often resulting in untreated or undertreated pain.[21,22] The role of opioids is another factor. Management of pain during hospitalization often involves use of opioids. Among opioid-naïve patients admitted to the hospital, 15 to 25 percent fill an opioid prescription in the week after hospital discharge and 15 percent meet criteria for long-term use at 1 year.[19] Persons discharged on opioids are potentially at risk for opioid-related adverse events as well untreated pain or withdrawal if opioids are discontinued inappropriately or tapered abruptly.

In persons with pain, transitions of care from the hospital to home or a nursing facility can result in potential disruptions in pain management, resulting in decreased quality of life, increased adverse events, readmissions, and increased costs. The Medicare population is particularly vulnerable during transitions of care due to higher medical complexity, presence of disability, or older age.[23] Data suggest differences in management of pain based on age during transitions of care, suggesting potential gaps in care. A study found that among 4,000 people with cancer 65 years of age and older with daily pain discharged from the hospital to nursing homes that those aged 85 years and older were more than 1.5 times as likely to receive no analgesia than those aged 65 to 74 years; only 13 percent of those aged 85 years and older received opioid medications, compared with 38 percent of those aged 65 to 74 years. Therefore, transitional care for persons entitled to Medicare with pain represent a potential opportunity to optimize management and reduce adverse outcomes.[24]

Scope

The research questions explored in this Topic Brief are listed below and are analyzed according to the PICOTS framework in Table 1.

1. In hospitalized people with pain, what are the effects of transitional care interventions on pain, function, quality of life, readmission, pain management (including opioid use), and adverse events?

1a. How do the effects of transitional care interventions vary according demographic (e.g., age, sex, race/ethnicity, socioeconomic status, insurance status) and clinical factors (e.g., pain conditions, pain duration, pain severity, comorbidities, use of opioids or other pain treatments)?

Table 1. Questions and PICOTS (population, intervention, comparator, outcome, timing, and setting)

Questions	1. Effects of transitional care interventions	1a. Effects in subgroups
Population	Hospitalized persons with pain*	Subgroups defined by demographic (e.g., age, sex, race/ethnicity, socioeconomic status, insurance status) and clinical factors (e.g., pain condition, pain duration, pain severity, comorbidities, use of opioids)
Interventions	Transitional care interventions (any type)	See question 1
Comparators	Usual care or no transitional care intervention	See question 1
Outcomes	Pain, function, quality of life, readmission, pain management (including opioid use), adverse events	See question 1
Timing	Any	See question 1
Setting	Hospital to home or hospital to nursing facility	See question 1

*Not restricted to persons eligible for Medicare, though evidence in Medicare-eligible populations will be highlighted if available

Assessment Methods

We conducted a literature search (Appendix A) and assessed the topic of transitional care interventions for people with pain for priority using a hierarchical process using adapted assessment criteria (Appendix B). Assessment of each criteria, based on consultation with local experts and a scan of the literature, determined the need to evaluate the next one.

1. Appropriateness
2. Importance
3. Current state of the evidence
4. Value and potential impact

For this Topic Brief, we defined value and potential impact as the potential for informing a policy/evidence action, suitability for commissioning a systematic review or technical brief, and implications for future research.

Current State of the Evidence

Based on a literature scan and consultation with local experts, this is a topic of clinical importance and appropriate for further assessment.

- Pain is common in hospitalized patients and transitions of care represent a period of increased vulnerability due to disruptions in pain management. People entitled to Medicare may be particularly vulnerable due to greater medical complexity, older age, or presence of disability.

Systematic reviews of transitional care interventions are available; however, they do not focus on patients with pain or evaluate key outcomes in this population.

- A review of reviews on transitional care interventions (search date May 2014) included 10 systematic reviews of mixed patient populations (geriatric, postsurgical, or various patients receiving specific transitional care interventions [hospital at home, medication reconciliation, patient-centered medical home, telemonitoring or structured telephone support]) and seven systematic reviews on transitional care interventions in specific patient populations (acute myocardial infarction/acute coronary syndrome, cancer, congestive heart failure, chronic obstructive pulmonary disease, mental health admissions, or stroke/acute coronary.[2]
- Nine systematic reviews published subsequent to the review of reviews assessed transitional care interventions in a range of populations and settings, but none of these reviews were focused on pain populations or reported pain outcomes.
- Readmission was the main outcome of interest assessed in the reviews identified through literature searches, summarized below:
    - One systematic review in the review of reviews included studies conducted in postsurgical patients of the multidisciplinary ERAS model in post-pancreatectomy patients.[3] The review included seven moderate quality retrospective cohort studies comparing the ERAS model with usual care and three low quality uncontrolled ERAS cohort studies, but identified no randomized trials meeting inclusion criteria. The review found no difference in readmission rates or mortality between ERAS versus usual care. Furthermore, the ERAS protocols focused on management from surgery to discharge, rather than on transitions following discharge. Other relevant outcomes (e.g., pain, function, quality of life, opioid utilization) were not assessed.
    - One other meta-analysis (not in the review of reviews) of 20 case-control studies of ERAS versus usual postoperative care following pancreatic surgery reported similar results, finding no difference in readmission rates (16 studies; pooled odds ratio [OR] 1.04, 95% confidence interval [CI] 0.83 to 1.30) or mortality (19 studies, pooled OR 0.85, 95% CI 0.54 to 1.36).[4]
- None of the other systematic reviews, either those in the review of reviews or those published subsequent to the review or reviews, included studies of patients with pain or reported key pain-related outcomes (e.g., pain intensity, pain-related function, opioid utilization, opioid-related adverse events).

There is also very limited evidence published subsequent to the systematic reviews.

- A cohort study of 5,749 chronic opioid users who underwent elective surgery assessed the effect of having a usual provider on post-surgical high-risk opioid prescriptions (multiple prescribers, overlapping opioid and/or benzodiazepine prescriptions, new long acting opioid prescriptions, or new dose escalations to >100 mg morphine equivalents).[13] The study excluded people over age 65 years. The study found not having a usual provider versus having a usual provider was associated with high-risk opioid prescribing (adjusted OR 1.97, 95% CI 1.26 to 3.07), having multiple prescribers (adjusted OR 2.23, 95% CI 1.75 to 2.83), and receipt of a new long-acting opioid prescription (adjusted OR 1.69, 95% CI 1.05 to 2.71). A postoperative visit to a usual provider within 30 days of surgery was also associated with a lower risk of having multiple prescribers (adjusted OR 0.80, 95% CI 0.68 to 0.95) versus those who did not return to a usual provider.
- No relevant in-progress studies were identified in clinicaltrials.gov**.**

Table 2 describes the literature found for each question.

Table 2. Literature identified on transitional care interventions for people with pain by question

Question	Systematic Reviews	Primary Studies
Question 1: In hospitalized persons with pain, what are the effects of transitional care interventions on pain, function, quality of life, readmission, opioid use, and adverse events?	Total: 16 • Cochrane: 0 • Veterans Affairs Evidence Synthesis Program: 1 review of reviews (17 systematic reviews; of these, 1 review of observational studies of the ERAS protocol for post-surgical patients) • Other: 9 reviews published subsequent to the review of reviews; of these, 1 review of observational studies of the ERAS protocol for post-surgical patients	Total: 1 retrospective cohort study Clinicaltrials.gov • No studies
Question 1a. How do the effects of transitional care interventions vary according demographic (e.g., age, sex, race/ethnicity, socioeconomic status, insurance status) and clinical factors (e.g., pain conditions, pain duration, pain severity, comorbidities, use of opioids)?	• No evidence	• No evidence

ERAS = Enhanced Recovery After Surgery

See Appendix B for detailed assessments of all Evidence-based Practice Center Program selection criteria.

Summary of Assessment Criteria

Value and Impact

Care coordination for patients with pain is an important topic; however, evidence on the effectiveness of transitional care interventions in patients with pain is extremely limited. Although we identified 26 systematic reviews (17 in a review of reviews and 9 additional), no randomized trials of transitional care interventions in persons with pain were identified. Available observational studies primarily focused on patients with postsurgical pain but focused on predischarge aspects of management and readmissions rather than other outcomes relevant for patients with pain. Although a number of systematic reviews on transitional care interventions included studies applicable to the Medicare population based on age, management of pain was not addressed, with the exception of the observational studies of the ERAS approach described above. Because the literature is too scant, a new systematic review would be of limited impact and there is insufficient evidence to inform policy or coverage decisions.

Given the importance of pain in hospitalized persons entitled to Medicare and challenges in managing transitions of care, research to inform this topic is warranted. Research could utilize transitional care interventions that have been evaluated for patients with non-pain conditions, but should evaluate outcomes relevant for patients with pain such as pain, pain-related function, quality of life, and pain treatment regimens (including opioid utilization), in addition to outcomes evaluated in prior research on transitional care interventions, such as readmission rates. Because hospitalized patients frequently have pain, studies would not necessarily need to focus exclusively on patients primarily admitted for pain, though results should be reported in this subgroup. To best inform studies on transitional care interventions for persons with pain, research is needed on the epidemiology of pain in hospitalized older patients, patient-centered care of pain across transitions, and the natural history of pain following hospital discharge. To be most applicable to patients entitled to Medicare benefits, studies should enroll patients enrolled in or eligible for Medicare, or who would be similar to those enrolled in Medicare based on age, presence of disability, or other factors.

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Authors

Roger Chou, M.D., FACP
Devan Kansagara, M.D., M.C.R.
Tracy Dana, M.L.S.
Miranda Pappas, M.A.
Erica Hart, M.B.S.

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Disclaimers

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The information in this report is intended to help healthcare decision makers—patients and clinicians, health system leaders, and policymakers, among others—make well-informed decisions and thereby improve the quality of health care services. This report is not intended to be a substitute for the application of clinical judgment. Anyone who makes decisions concerning the provision of clinical care should consider this report in the same way as any medical reference and in conjunction with all other pertinent information, i.e., in the context of available resources and circumstances presented by individual patients.

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Afterword

Medicare beneficiaries and other people with acute and chronic pain often receive treatment that does not successfully address pain, resulting in profound physical, emotional, and societal costs to them and their families, friends, and caregivers. Centers for Disease Control and Prevention data indicate 50 million adults in the United States have chronic daily pain, with nearly 20 million experiencing high-impact pain that interferes with daily life or work.[1] At the same time, the country is also coping with an opioid and substance use disorders crisis that involves shifting "waves" of overdose deaths associated with heroin, synthetic opioids, and prescription drugs, and intensifying polysubstance use. The country is also experiencing the COVID-19 public health emergency, which poses its own challenges for individuals, and the healthcare system.

Opioid analgesics play an essential role in treating pain, and pain management in the context of the nation's substance use crisis has rapidly evolved beyond an opioid-centric approach. Clinicians and healthcare systems need more information about multimodal pain care options in outpatient and inpatient settings to effectively treat Medicare and other patients with pain, and people with both pain and either active or historic substance use disorders, including knowledge about complementary care, analgesic medications, and medical devices that are potentially effective.

To address this challenge, AHRQ has undertaken three topic briefs and two systematic reviews to inform Medicare coverage and payment for treatment of acute and chronic pain in support of the Dr. Todd Graham Pain Management Study, section 6086 of the SUPPORT Act.

The topic briefs are:

- Care Coordination and Care Plans for Transitions Across Care Settings
- Treatments and Technologies Supporting Appropriate Opioid Tapers
- Treatments, Technologies, and Models for Management of Acute and Chronic Pain in People With a History of Substance Use Disorder

The systematic reviews are:

- Interventional Treatments for Acute and Chronic Pain
- Integrated Pain Management Programs

If you have comments on this report, they may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

David Meyers, M.D.
Acting Director
Agency for Healthcare Research and Quality

Arlene S. Bierman, M.D., M.S.
Director
Center for Evidence and Practice Improvement
Agency for Healthcare Research and Quality

Christine Chang, M.D., M.P.H.
Acting Director
Evidence-based Practice Center Program
Center for Evidence and Practice Improvement
Agency for Healthcare Research and Quality

Elisabeth U. Kato, M.D., M.R.P.
Task Order Officer
Evidence-based Practice Center Program
Center for Evidence and Practice Improvement
Agency for Healthcare Research and Quality

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Appendix A. Methods

We assessed the topic for suitability for further action such as commissioning a systematic review or technical brief to inform clinical or policy decision making, or to inform future research priorities with a hierarchical process using assessment criteria adapted from the AHRQ Effective Health Care Topic Development process. Assessment of each criteria determined the need to evaluate the next one. See Appendix B for detailed description of the criteria.

Appropriateness and Importance

We assessed the nomination for appropriateness and importance, based on a preliminary literature scan and telephone interviews with three local experts with expertise in pain management and transitions of care.

Current State of the Evidence

We searched for high-quality, completed or in-process evidence reviews published in the last three years on the questions of the nomination from these sources:

- AHRQ: Evidence reports and technology assessments
  - AHRQ Evidence Reports https://www.ahrq.gov/research/findings/evidence-based-reports/index.html
  - EHC Program https://effectivehealthcare.ahrq.gov/
  - U.S. Preventive Services Task Force https://www.uspreventiveservicestaskforce.org/
  - AHRQ Technology Assessment Program https://www.ahrq.gov/research/findings/ta/index.html
- U.S. Department of Veterans Affairs products and publications
  - Evidence Synthesis Program https://www.hsrd.research.va.gov/publications/esp/
  - VA/Department of Defense Evidence-Based Clinical Practice Guideline Program https://www.healthquality.va.gov/
- Cochrane Database of Systematic Reviews https://www.cochranelibrary.com/
- PROSPERO Database (international prospective register of systematic reviews and protocols) http://www.crd.york.ac.uk/prospero/
- Ovid MEDLINE https://www.ovid.com/product-details.901.html
- ClinicalTrials.gov https://www.clinicaltrials.gov/

We conducted a search on September 18, 2020, on Ovid® MEDLINE® and The Cochrane Library. The search strategy included terms for pain and transitional care interventions. We reviewed all of the citations identified in the search for potentially relevant citations, and classified identified studies by study design to estimate the size and scope of a potential evidence review. We also searched ClinicalTrials.gov for in-progress reviews.

Database: Ovid MEDLINE(R) ALL 1946 to September 18, 2020

1 "Continuity of Patient Care"/
2 Patient Care Team/
3 Patient Care Management/
4 Patient Care Planning/ or Case Management/ or Critical Pathways/
5 (care adj2 (coordinate* or coordination or continuity or transition*)).ti,ab,kf.
6 or/1-5

7 Chronic Pain/
8 exp arthralgia/ or exp back pain/ or exp headache/ or exp musculoskeletal pain/ or neck pain/ or exp neuralgia/ or exp nociceptive pain/ or pain, intractable/ or fibromyalgia/ or myalgia/
9 Pain/
10 chronic.ti,ab,kw.
11 9 and 10
12 ((chronic or persistent or intractable or refractory) adj3 pain).ti,ab,kw.
13 (((back or spine or spinal or leg or musculoskeletal or neuropathic or nociceptive or radicular) adj1 pain) or headache or arthritis or fibromyalgia or osteoarthritis).ti,ab,kw.
14 7 or 8 or 11 or 12 or 13
15 6 and 14
16 Medicare/
17 (medicare or disabled or disabilit* or kidney or renal or "lou gehrig*" or "amyotrophic lateral sclerosis" or "als").ti,ab.
18 16 or 17
19 15 and 18
20 limit 15 to "all aged (65 and over)"
21 19 or 20
22 1 or 5
23 14 and 22
24 21 or 23
25 limit 24 to english language

Value and Potential Impact

Based on the literature scan, we assessed the nomination for value and potential impact, based on the quality and extent of available evidence. We evaluated the potential for the evidence to (1) inform a policy or coverage action; (2) suitability for commissioning a new systematic review or technical brief; and (3) implications of current evidence on future research needs.

Appendix B. Assessment Criteria

Assessment Domain	Assessment Criteria	Assessment
1. Appropriateness	1a. Does the nomination represent a health care drug, intervention, device, technology, or health care system/setting available (or soon to be available) in the United States?	Yes (transitional care interventions)
	1b. Is the nomination a request for an evidence report?	No
	1c. Is the focus on effectiveness or comparative effectiveness?	Yes
	1d. Is the nomination focus supported by a logic model or biologic plausibility? Is it consistent or coherent with what is known about the topic?	Yes (evidence on transitional care interventions for nonpain conditions)
2. Importance	2a. Represents a significant disease burden; large proportion of the population	Yes, pain is highly prevalent in persons being discharged
	2b. Is of high public interest; affects health care decision making, outcomes, or costs for a large proportion of the U.S. population or for a vulnerable population	Yes, potential for disruptions in pain management, adverse patient outcomes
	2c. Incorporates issues around both clinical benefits and potential clinical harms	Yes
	2d. Represents high costs due to common use, high unit costs, or high associated costs to consumers, to patients, to health care systems, or to payers	Yes—readmissions, adverse events, and suboptimal pain care can be associated with high costs.
3. Current State of Evidence	3a. A recent high-quality systematic review or other evidence review is not available on this topic 3b. Adequacy (type and volume) of research for a new systematic review or technical brief	Yes A review of reviews that included 17 systematic reviews only included 1 review of patients with pain. It evaluated the ERAS protocol in persons with post-surgical pain but identified no randomized trials and focused on readmission rates as the primary transitional care outcome; in addition, the ERAS protocol focused on management to discharge (rather than transition during discharge). One additional systematic review of the ERAS protocol had similar findings; 8 additional systematic reviews did not address patients with pain. One cohort study not included in the systematic reviews evaluated the association between an early return visit to the usual provider and likelihood of receiving prescriptions from multiple providers. No relevant in-progress trials were identified in clinicaltrials.gov.

Assessment Domain	Assessment Criteria	Assessment
4. Value and Potential Impact	4. Effectively utilizes existing research and knowledge by considering: - Newly available evidence - Research needs	There is insufficient evidence to inform a policy or coverage action. Current evidence is too insufficient to be suitable for commissioning a new systematic review or topic brief. Research is needed to identify effective transitional care interventions in populations entitled to Medicare.

Abbreviations: AHRQ = Agency for Healthcare Research and Quality; ERAS = Enhanced Recovery After Surgery